

Claims

1. Method for operating a gas turbine with a fossil-fuel fired combustion chamber (5)
5 w h e r e i n the following steps are performed:
 - a) exhaust gas (9) exiting the gas turbine is divided into a first (11) and a second partial stream (13),
 - b) the first partial stream (11) is mixed with combustion air (15) and the resulting mixture (17) is channeled back to
10 the combustion chamber (5), and
 - c) the second partial stream (13) is channeled to a carbon dioxide precipitation plant (21).
2. Method according to Claim 1
15 w h e r e i n
 the exhaust gas (9) is cooled before being divided into the first (11) and second partial stream (13) and water (29) forming during this process is removed.
- 20 3. Method according to Claim 2
 w h e r e i n
 cooling of the exhaust gas (9) takes place in at least a first (271) and a second cooling stage (272).
- 25 4. Method according to Claim 3
 w h e r e i n
 the exhaust gas (9) is channeled after exiting the gas turbine to a waste-heat steam generator (28) for generating process
 steam (31) for a steam turbine (33), then to the first cooling
30 stage (271).
5. Method according to Claim 4
 w h e r e i n
 the first cooling stage (271) is operated by means of a coolant
35 (37) which is also used as a coolant (37) of a condenser into
 which expanded steam (43) exiting the steam turbine (33) is introduced.

6. Method according to one of the Claims 1 to 5
w h e r e i n
the carbon dioxide precipitation plant (21) incorporates a
5 cooling process for cooling the second partial stream (13).
7. Method according to one of the Claims 1 to 6
w h e r e i n
carbon dioxide (41) precipitated by means of the carbon dioxide
10 precipitation plant (21) is channeled to a storage facility
(39).
8. Method according to Claim 7
w h e r e i n
15 the carbon dioxide (41) is stored in a liquid and/or solid aggregate state, in particular a frozen state.
9. Device (1) for operating a gas turbine with a fossil-fuel fired
combustion chamber (5)
20 w h e r e i n there is provided
- a branching device (23) by means of which exhaust gas (9) exiting the gas turbine can be divided into a first (11) and a second partial stream (13),
 - a mixing device (25) by means of which the first partial
25 stream (11) can be mixed with combustion air (15) and channeled to the combustion chamber (5), and
 - a carbon dioxide precipitation plant (21) to which the second partial stream (13) can be channeled.
- 30 10. Device (1) according to Claim 9
w h e r e i n there is provided
a cooling device (27) which is connected upstream of the
branching device (23) and by means of which the exhaust gas (9)
can be cooled and water (29) precipitated during this process
35 can be removed.

11. Device (1) according to Claim 10

w h e r e i n

the cooling device (27) has at least a first (271) and a second cooling stage (272).

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12. Device (1) according to Claim 11

w h e r e i n there is provided

a waste-heat steam generator (28) which is connected downstream of the gas turbine and upstream of the first cooling stage

10 (271) and by means of which process steam (31) can be generated for a steam turbine (33).

13. Device (1) according to Claim 12

w h e r e i n there is provided

15 a condenser (35) connected downstream of the steam turbine (33), with the first cooling stage (271) being capable of being operated by means of a coolant (37) which is also used as a coolant of the condenser (35).

20 14. Device (1) according to one of the Claims 9 to 13

w h e r e i n

the carbon dioxide precipitation plant (21) is embodied as a refrigeration plant by means of which the second partial stream (13) can be cooled.

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15. Device (1) according to one of the Claims 9 to 14

w h e r e i n there is provided

a storage facility (39) in which carbon dioxide (41) precipitated by means of the carbon dioxide precipitation plant (21)

30 can be stored.

16. Device (1) according to Claim 15

w h e r e i n

35 the storage facility (39) is embodied for storing liquid and/or solid, in particular frozen, carbon dioxide (41).